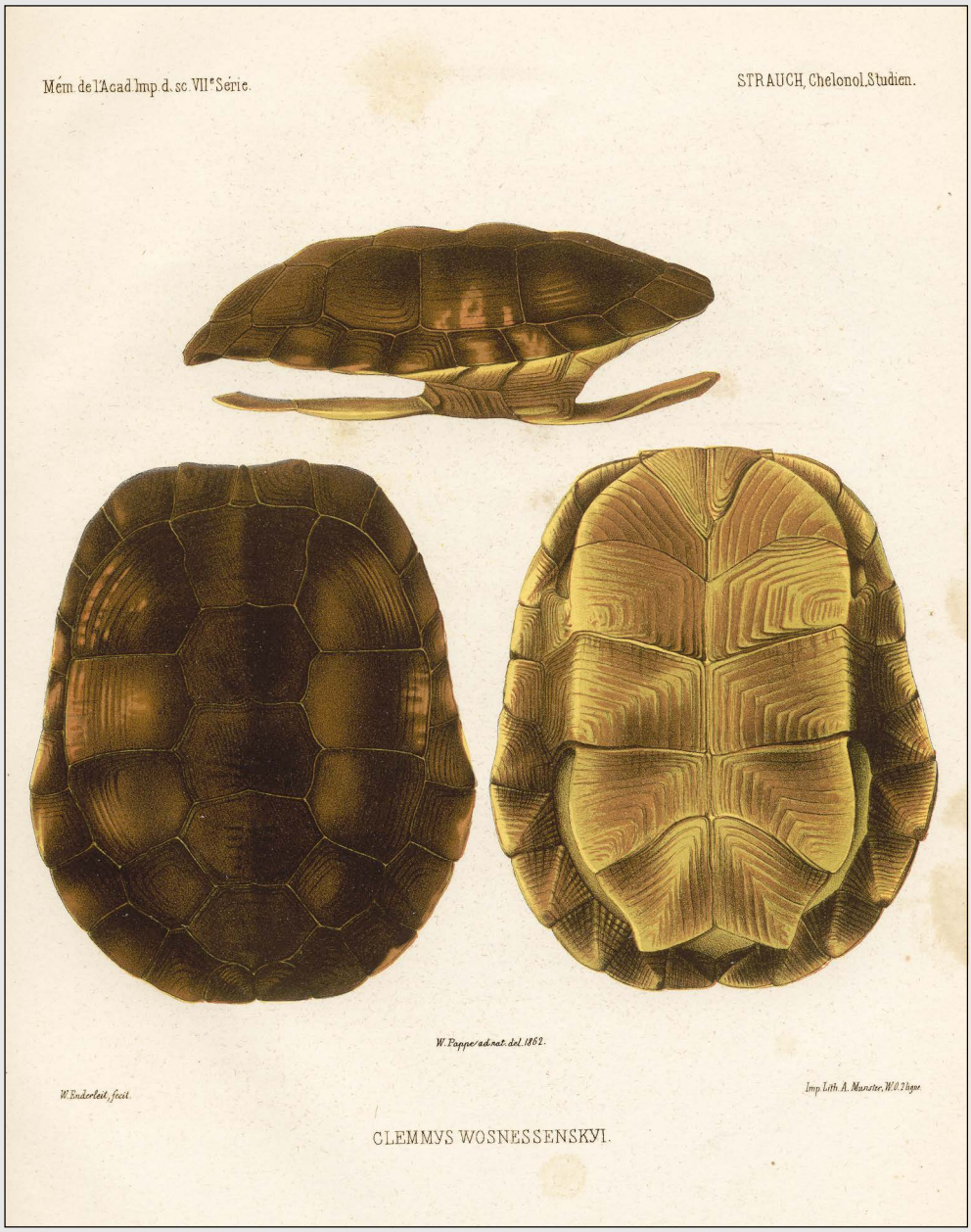
Bibliotheca Herpetologica

A Journal of the History and Bibliography of Herpetology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International Society for the History and Bibliography of Herpetology

International Society for the History and Bibliography of Herpetology

The Society

The **ISHBH** is a not-for-profit organization established to bring together individuals for whom the history and bibliography of herpetology is appealing, to promote the knowledge of related topics among members and the general public, and to promote research. Membership is open to anyone who shares the aims of the Society.

Membership

The biennial fee for 2004–2005 is US $30, Institutions US $50 and Life Membership US $300. This fee includes a subscription to the Society's biannual journal *Bibliotheca Herpetologica* (formerly the *International Society for the History and Bibliography of Herpetology Newsletter and Bulletin*). A membership form can be found on our Web site. Payment can be made with a personal check or a money order drawn on a US bank. Please submit the payment to our postal address below. In the EU and elsewhere you may pay the USD corresponding amount in EUR or SEK. From EU countries: IBAN: SE83 9500 0099 6042 0455 1206, BIC: NDEASESS. From elsewhere: Account No. 455120-6 with Plusgirot, Stockholm, Sweden, Swift: NDEASESS. For any other method of payment please contact us first.

Members are encouraged to contribute with articles, essays, news of meetings, hints on antiquarian trade, book reviews and other issues associated with herpetology. The Society organizes seminars, visits to libraries, museums, research stations, etc. in connection with herpetological meetings with international participation. The Society works to facilitate informal contacts among members so that the members can meet, offer support in knowledge and transact exchanges of literature and ephemera.

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Instructions for Authors

Authors submitting a manuscript do so on the understanding that the work has not been published before and is not being considered for publication elsewhere. Manuscripts are peer reviewed. *Bibliotheca Herpetologica* (formerly the *International Society for the History and Bibliography of Herpetology Newsletter and Bulletin*) is submitted to BIOSIS (U.K.) for inclusion in *Zoological Record*.

The language of *Bibliotheca Herpetologica* is English. British English or American English spelling and terminology may be used, but either one should be used consistently throughout the article.

Consult the latest issue of *Bibliotheca Herpetologica* for article format. The Editor reserves the right to adjust style to maintain uniformity.

Manuscripts and should be submitted to the Editor (pdavid@mnhn.fr) in electronic form and preferably in Rich Text Format (*.rtf; this ensures cross-platform compatibility). However, you should contact the Editor first for advice. Color illustrations other than used for the cover will be at the author's expense. Illustrations should also be submitted in electronic form, but consult with the Editor first. The ISHBH cannot take responsibility for material sent by post.

Society News

***Bibliotheca Herpetologica* – The new name for the Newsletter and Bulletin.**

In the Newsletter & Bulletin vol. 5(1) we asked the readers to nominate names for this periodical of the Society. When the first issue was published in May 1999 it was indexed by *Zoolocical Record* under *International Society for the History and Bibliography of Herpetology Newsletter and Bulletin*. Eventually it became apparent that a more identifiable and less cumbersome name would be more desirable for both formal citations and general reference. The participation of the members in finding a suitable name was natural and even necessary. A contest was announced with a worthy prize to the person who submitted the winning name. In due course proposals were submitted from seven sources and several contributors made propositions of more than one name, so eventually the judges, consisting of the Executive Committee members, had 18 names to choose from. C. Kenneth Dodd of Florida in the USA submitted the winning name: *Bibliotheca Herpetologica*. The judges felt that the name, which is in Latin, was appropriate for a journal that deals with literature on herpetology but, as the objective of the society's activities embraces the general history of the discipline, a more descriptive subtitle could be useful. Thus we propose the informal subtitle - *A Journal of the History and Bibliography of Herpetology*. This description was actually proposed by another participant in the naming contest, Matthew P. Bettelheim, and he is awarded an honorable mention.

Ken Dodd mentioned that his idea sprang from *Bibliotheca Universalis* by Conrad Gessner (1516-1565). *Bibliotheca Universalis* was the first bibliography of scholarly works, which had been written in Latin, Greek or Hebrew. The first part of this universal bibliography was published in Zurich, Switzerland in 1545 and the second part came in 19 different sections or books in 1548 and 1549. Gessner was physician living in Zurich and he is rightly called the father of zoology on account of the works in five volumes that followed *Bibliotheca Universalis*, namely *Historia Animalium,* which is an imposing overview of all known animals by groups and then alphabetically. The first four volumes appeared from 1551 to 1558 and the last volume was published posthumously. The second volume in 1554, titled *Quadrupedibus Oviparis*, treats the egg-laying animals with legs, i.e., the reptiles and amphibians except the serpents. The snakes and, incidentally, the dragons (including the lizard *Draco* from tropical Asia), as well as the scorpions were dealt with in volume five, *Serpentium Natura*, derived from his unfinished manuscripts or notes and published in 1587.

Next meeting to be held in Stellenbosch, South Africa

The next meeting of the society will take place in conjunction with the Fifth World Congress of Herpetology to be held at the University of Stellenbosch, South Africa, 19-24 June 2005, (www.wits.ac.za/haa/5wch.htm). The University Stellenbosch has long been a center of herpetological research. The paleoherpetologist Robert Broom was once employed at the university and later Conrad de Villiers and his students produced excellent works on the histology and anatomy of a diversity of amphibians and reptiles. We will hold our customary business meeting and luncheon during the course of the meeting and will have the opportunity for an excursion to nearby Cape Town to the South African Museum, founded by Sir Andrew Smith, and its important library. In addition, Cape Town is home to several fine bookshops as well as other institutions relevant to the history and bibliography of herpetology in southern Africa. Details of the meeting will be available on the ISHBH website shortly, but members planning on attending are encouraged to contact Aaron Bauer (aaron.bauer@villanova.edu) as soon as possible so that appropriate bookings can be made to accommodate the group.

About the Cover

This is the only plate in the paper by Alexander Strauch (1862), *Chelonologische Studien, mit besonderer Beziehung auf die Schildkrötensammlung der Kaiserlichen Akademie der Wissenschaften zu St.Petersburg* (*Chelonological studies, with special emphasis on the turtle collection of the Imperial Academy of Sciences at St. Petersburg*). It was published in the Mémoires de l'Académie Impériale des Sciences de St.-Pétersbourg, VIIe série Tome 5, No 7. Matthew P. Bettelheim, Dana E. Terry and Julia Dunaeva have translated the sections of this and two other monographs by Strauch that relate to the Western Pond Turtle (*Clemmys marmorata*), and, in addition, put together a bibliography of all known herpetological works by Strauch. The original plate has wide margins. The part that is reproduced measures 190 by 235 mm. The Mémoires measures 245 by 325.

Shorter Communications

Distinctive Collection of Herpetological Books on Public Auction

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Some books on reptiles and amphibians are particularly sought out by public libraries as well as by individuals for private libraries. A book by an author presenting groundbreaking research results or a book with lasting scientific importance is particularly in demand. Old books with attractive plates of reptiles and amphibians are above all much sought after, an aspect that was true already when the books were published in the 18th and 19th centuries. If there is a combination of these features the attractiveness of the book on the market is even greater.

On 14 October 2004 a library of such exceptional books was sold on a floor auction at PBA Galleries, San Francisco, California, USA. The books had once belonged to Howard Kay Gloyd (1902-1978). Howard Gloyd was a herpetologist from the USA specializing in pitvipers. He received his Ph. D. in 1937 at The University of Michigan. He then joined the Chicago Academy of Sciences as Director and served there until 1958 when he left for the Department of Zoology at the University of Arizona, where he became Professor Emeritus in 1974. He died in 1978 in Tucson. (Kraig Adler, 1989. Herpetologists of the past, in Kraig Adler [Ed.], *Contributions to the History of Herpetology*. SSAR *Contributions to Herpetology*, Number 5.) His widow, Kathryn, and Roger Conant, his close friend, companion and coauthor, who in 1979 had married Kathryn, donated Gloyd's massive library of technical books, reprints, and journals to the University of Texas at Arlington in 1991. A large room in the Amphibian & Reptile Biodiversity Research Center at UTA has been designated as the "Gloyd Library" and is used by graduate students and visiting scientists.

All of the books referred to in this paper have Howard K. Gloyd's Ex libris bookplate or have some other association with him. The auction was attended by bidders on the floor, by telephone, or on the Internet. Some of the copies are now available from antiquarian book dealers specialized in natural history and they can easily be found, if still available, on the web with the usual search engines for antiquarian books.

One of Gloyd's own books that became a classic was sold at the auction, namely *The Rattlesnakes, Genera Sistrurus and Crotalus. A Study in Zoogeography and Evolution*. It was a landmark study on the habitat and evolution of the rattlesnake published in 1940 by the Chicago Academy of Sciences and, being a classic, was reprinted in 1978 by SSAR. It is a presentation copy rebound in buckram and inscribed at the top of the title page by the author: "To Philip D. Evans". The hammer fell at $258 plus a buyer's premium of 15%. A copy in wrappers can occasionally be found on the antiquarian market priced at $150-200. This book was also Gloyd's doctoral thesis that was finished in 1936. At the auction the thesis version was offered; it is in carbon typescript on rectos only of 415 leaves plus preliminaries and 15 photographs, with corrections and notes to the text, apparently employed when published. It sold for $632.

In 1929, when Gloyd was 27, he presented his masters thesis at the Kansas State Agricultural College Studies named *Studies on the breeding habits and young of the copperhead, Agkistrodon mokasen Beauvois*. The set of 57 leaves in carbon typescript bound in gilt-lettered cloth was sold at the auction. This typescript had corrections and notations by his own hand probably made for the modified paper with the same title that was published in a Michigan journal in 1934. The estimate was $300/400 and it realized $431.

Josephus Nicolaus Laurenti published in Vienna, Austria in 1768 his book length thesis for a medical degree. The treatise deals with experiments with venomous snakes in Austria but the author also presents taxonomically the reptiles and amphibians with worldwide coverage. The latter part advanced the existing classification system considerably. Laurenti added several new genera to the 10th edition of *Systema naturae* by Linnaeus which was published just ten years earlier. The title is *Specimen Medicum, exhibens Synopsin Reptilium Emendatam cum Experimentis circa Venena et Antidota Reptilium Austriacorum*. The compiler of the auction catalogue has carefully described that the last text page before the five copper-engraved plates has a catchword "The.", and noted the possibility that another work was once included at the end. The fact is that a "Thesis" of two pages was placed following the last body text page in the actual dissertation but the present copy is the public book version that came out later in the same year without a preface and thesis. The price realized was $1,725. For comparison, a thesis version was available before this auction from a large Dutch dealer for €3,500 (approximately $ 4,500). Gloyd's copy is now available from a USA dealer for $5,500.

Charles Owen's *An Essay Towards a Natural History of Serpents* is described in the catalogue as a "compendium of 18th-century perceptions, a work that draws on classical, biblical and mythological sources in its depiction of snakes, turtles, wasps and scorpions, as well as such mythical creatures as griffins and dragons, all of which are classified under the title 'serpent'". It is an adequate narrative but there is, indeed, no turtle depicted. We would say it is a charming book with a wealth of information although the text is not particularly trustworthy even for the time when it was published in 1742 in London. It consists of 240 pages plus an index and seven copper plate engravings with mostly quite bizarre animals, usually taken from Gessner.

It is regularly cited that Laurence M. Klauber in his well-known article of 1945 Some herpetological book prices then and now (*Herpetologica*, vol. 2:164) implied that this book by and large is overpriced by dealers because of its age. Owen's book was pretty common on the market until 25 years ago. His statement probably misleads many dealers today to sell the book underpriced because it is, after all, quite scarce nowadays. At this auction it fetched $1,265. One dealer, Tom Sinclair - Scaly Tales in Texas, USA, announced it, coincidentally one day before the auction in his e-mail list number 2004/100 for $425. At this price he had three requests for it.

The Snakes of Australia by Gerard Krefft was published in 1869, the first of its kind on Australian snakes. The copy at this auction was not the version with the 12 plates hand colored but it is nonetheless a desirable work. It fetched $1,725, which shall be compared with the estimate of $1,000/1,500.

L'Abbé [Pierre-Joseph] Bonnaterre's (1789 & 1790) *Tableau encyclopédique et méthodique des trois règnes de la nature... Erpétologie [and] ...Ophiologie*, a quarto size volume with all text and 69 copper-engraved plates was sold for $920. These two important publications were parts of the "Tableau encyclopédique et méthodique des trois règnes de la nature", a multi-volume illustrated encyclopedia of plants, animals, and stones known at that time. Bonnaterre merely but scrupulously reproduced Lacepède's descriptions and taxonomic names, including his French names. However, Bonnaterre made a more careful use of Latin binomial nomenclature in naming his taxa than did Lacepède. As a consequence, the volume on Ophiology is now of great nomenclatural importance since the invalidation of Lacepède's volume on snakes by the International Commission of Zoological Nomenclature (ICZN, 1987. Opinion 1463. De Lacépède, 1788-1789, Histoire Naturelle des Serpens and later editions: rejected as a non-binominal work. *Bulletin on zoological Nomenclature*, 44 (4): 265-267). Valid original descriptions of several snake species are now found in Bonnaterre.

Albert C. L. G. Günther's (1864) *The Reptiles of British India* was published for the Ray Society by Robert Hardwicke in London. It is a magnificent early work in folio with 26 lithographed plates. The copy at this auction had some marginal damp staining to contents and some of the plates. It fetched $977.

Hermann Schlegel's (1837) *Essai sur la Physionomie des Serpens* is the author's most famous herpetological work. The atlas volume with 21 copper-engraved plates, 3 double-page maps with hand-coloring and two folding tables only was available here; the two text volumes not present. The engraved plates depict snake heads with multiple images on each plate. It was sold for $1,380.

Frank Wall's (1921) *Ophidia Taprobanica or the Snakes of Ceylon* was published in Ceylon [Sri Lanka] by H.R. Cottle. It is a marvelous piece and still useful. It was sold for $402 and is now for sale for €650 (about $845), which we consider still inexpensive.

Jacob Theodor Klein's (1755) *Tentamen Herpetologiae* is a taxonomical work that challenged Linnaeus' classification system of snakes. It is a very scarce book with two copper engravings, one depicting the mysterious two-legged animal that is reproduced as part of the Society's logo. However, its main claim to fame today is introduction of the term herpetology. It realized $2,070. Now it is catalogued and for sale at $6,000!

There were a few other herpetological books and some by Alfred Russel Wallace from Gloyd's library in the auction. A full description of the sale can be obtained from the Web site of PBA Galleries: http://www.pbagalleries.com

We thank Kraig Adler (Cornell University, Ithaca) for his comments of the draft of this paper.

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In memoriam Dr. Olivér György Dely (1927–2003)

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It is with deep regret that we announce that Dr. Olivér György Dely, professional student of Hungarian herpetology, re-constructor and curator of the herpetological collection in the Hungarian Natural History Museum, and author of the classic books on Hungarian amphibians and reptiles (in the series *Fauna Hungariae*), passed away on 19 November 2003 after a long illness.

Olivér György Dely was born on 27 April 1927 in Nagyszalonta (= Salonta, today in County Bihor, Romania). His love for his homeland, Transylvania, remained with him throughout his life. At the age of seven he lost his father, Géza Dely, who, nonetheless, was an important influence on his life. His mother, Mária Bajor, a retired schoolteacher, brought up the two brothers, Alajos (later a dermatologist) and Olivér. Two important friends, an uncle, Andor Dely, and the Trianon diplomat, Iván Praznovszky, who served partly as a father figure, also played a role in Dely's upbringing. As a result of the support of the entire family, the two boys both became well-known, educated persons, and found their place in the world.

Olivér Dely studied in the schools of Nagyvárad (= Oradea**)** and Nagyszalonta, but a short period of captivity in a Russian prison camp during his military service in World War II interrupted his studies. He completed his final exams in a Budapest secondary school in 1946. In the same year he started to study museology at the Faculty of Arts, Péter Pázmány (later Budapest) University, where he graduated in 1950. He began to work in the herpetological collection of the Department of Zoology of the Hungarian Natural History Museum (HNHM), Budapest. At that time, there were two herpetologists in the museum from whom Dely could learn: Mrs. Aranka Mária Fejérváry-Lángh was curator of the collection, and István Boros was general director. The latter, having studied in the Soviet Union, was a faithful communist, relating to other people with great humanity. Later Dely and Boros wrote three papers together on the greatest scientists of Hungarian herpetology (Lajos Méhely, Géza Gyula Fejérváry, and István Bolkay). Olivér Dely became senior curator for the herpetological collection in 1952, and kept this title until the end of his life.

The fall of 1956 brought political revolution to Hungary, and the Budapest confrontations between Hungarian revolutionaries and Russian troops resulted in a tragic attack against the National Museum, and later the Department of Zoology of the HNHM. In the major fire caused by a shell, the entire herpetological collection was almost destroyed - more than 40,000

Dr. Olivér György Dely (photo by Ferenc Mihályi, 1988)

alcoholic specimens (including the Méhely-types) burnt to ash (Boros 1957). After the end of the revolution, it was Dely's task to rebuild the collection. The museum received many donations from other European museums (e.g., Berlin, Prague, St. Petersburg), but it was the tireless work of Dely, accompanied by his faithful assistant, Ms. Elisabeth Õry, that increased the collection number from almost nothing to its present 16,000 specimens.

Unfortunately, not only the entire collection but also all the scientific manuscripts of the young scientist and the material on which they were based was destroyed in the fire of 1956. Olivér Dely had to start his work again, and it took eight more years for him to finish his dissertation for the Candidate of Science degree. Finally, he received this title from the Hungarian Academy of Sciences in 1965 for his taxonomic and ecological studies on the Hungarian populations of the Alpine Newt (*Triturus alpestris*).

To partly replace the loss of the collection in 1956, Dely conducted the first Hungarian Africa expedition into Egypt in 1957. In 1973, he participated in another expedition into the Algerian Sahara, where he suffered a serious accident during night collecting. His left leg was injured by a shotgun, and the healing process took almost two years. Unfortunately, his health never completely recovered, and the consequences of this accident (including the repeated breakage of his leg) subsequently influenced his entire life.

In 1965 Olivér György Dely married Ágnes Draskovits, who also worked in the Hungarian Natural History Museum as a specialist on Diptera. They were together on an expedition to North Korea in 1978 - the fourth of a series of 22 conducted by the HNHM, which established a worldwide reputation for the institution based on its accumulated East Asiatic material.

Despite all the difficulties in his life, Dr. Dely established himself as a prominent herpetologist, whose work and merits were admired throughout Europe. In a pioneering act, he organised the First Herpetological Conference of the Socialist Countries in 1981, which became a forum for bringing together 47 representatives of this field of zoology from 14 countries, including, among others, the United States, France, Germany, Austria and Russia. Ten years after, in 1991, he was elected to be the honorary president of the 6th Ordinary General Meeting of the Societas Europaea Herpetologica, also held in Budapest.

Dr. Dely published 83 scientific papers (in German, French, English and Hungarian), and although this number is not exceptionally high, there can be no doubt about their scientific accuracy, value and utility. He learned the value of exact observation and description as well as careful analysis and interpretation from the greatest Hungarian herpetologists (Méhely, Bolkay, Fejérváry), and he was a worthy successor. Dely's papers – with a few exceptions – deal with Hungarian amphibians and reptiles and his goal was to eventually treat the entire herpetofauna from a taxonomic and systematic perspective. His favorite subject was morphological variability at the individual and population levels; he measured body size parameters, counted scale rows, and drew head shield patterns, in order to clarify questions of microevolution of co-existing and isolated amphibian and reptile populations.

In his dissertation for the Candidate of Science degree, he described four new subspecies of the Alpine Newt from Hungary (*Triturus alpestris bakonyiensis, bükkiensis, carpathicus,* and *sátoriensis*). These forms, however, were not subsequently accepted as valid taxa. In separate publications he considered the following species of the Hungarian herpetofauna: *Rana arvalis wolterstorffi*, *Salamandra salamandra*, *Lacerta (=Zootoca) vivipara*, *Lacerta (=Podarcis) taurica*, *Anguis fragilis*, *Coluber caspius*, *Vipera berus* and *Vipera ursinii rakosiensis*; listing their distribution records, and discussing popu-

lation variability and zoogeographical history in some cases. He contributed to the great European herpetological book series initiated in the 1980s (*Handbuch der Reptilien und Amphibien Europas*, edited by W. Böhme) with two chapters on *Lacerta vivipara* and *Anguis fragilis*. He wrote the relevant papers on amphibians and reptiles in the scientific results of the work of HNHM in three of the Hungarian National Parks (Hortobágy, Kiskunság and Bükk), as well as that of the Bátorliget Nature Reserve. Together with his geneticist colleague Dr. Gábor Stohl, they established the hereditary nature of head shield patterns of three lacertid lizard species (*Zootoca vivipara*, *Podarcis taurica*, and the Mongolian *Eremias argus*) and the Hungarian Meadow Viper (*Vipera ursinii rakosiensis*), and commented on the phylogenetic implications of their findings. Dely also published papers on some exotic reptiles including the South American amphisbaenid *Anops kingii*, the Egyptian turtle *Pelomedusa subrufa*, and the lacertid genus *Eremias*, based on the collection by Z. Kaszab from Mongolia.

His two books in the academic series *Fauna Hungariae* (Amphibia, 1967, and Reptilia, 1978) can undoubtedly be considered his most important contributions to Hungarian herpetology. These were, and still are, the most comprehensive scientific summaries of all the amphibian and reptile species in the Carpathian Basin. They are sought-after books throughout Europe, despite the fact that they were written only in Hungarian.

In 1959 Olivér Dely initiated the museum's periodical *Vertebrata hungarica*. He edited all of the subsequent 23 volumes, filling it with high-standard articles written by him and well-known colleagues. It was a great pity for him when in 1989, mainly because of financial reasons, the publication had to be stopped. He always collected the literature of his predecessors and honored their lives and contributions. He valued tradition and followed many old traditions himself. "Honesty, honor, commitment, patriotism" were the cornerstones of his way of thinking.

As long as he could make it, he regularly visited the museum, and tried to maintain good and current relationships with his herpetologist students, followers, and foreign colleagues. Even during the last months of his life, painfully struggling with the consequences of the 1973 accident and his former heavy smoking habit, long since abandoned, he wanted to organize his reprint library, and planned to prepare herpetological works for final publication. He had an exceptionally wide education, which was evident in his long afternoon talks, almost speeches, which provided his friends and colleagues with an unforgettable picture of the difficult times he had lived and worked through. To the people surrounding him, he has not only bequeathed the professional grounding in herpetology and the modesty, accuracy and objectivity that are needed to be a scientist, but has also provided an example to follow in terms of honesty and strength of character.

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A Selective Translation of Alexander Strauch's "Chelonological Studies," "Global Distribution," and "Comments" Specific to the Western Pond Turtle (*Clemmys marmorata*), Including a Bibliography of his Known Herpetological Works

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In 1862 Alexander Alexandrovich Strauch (Aleksandr Aleksandrovich Strauch; 1832-1893; see portrait opposite page), curator of the Imperial Academy of Sciences Zoological Museum in St. Petersburg (now the Zoological Institute of the Russian Academy of Sciences), was the first to associate the generic and specific names under which we commonly recognize California's western pond turtle today: *Clemmys marmorata* (Strauch 1862; see also Strauch 1890).

Naturalists Spencer F. Baird and Charles F. Girard in 1852 were the first to recognize the western pond turtle as a valid species, *Emys marmorata*, from a specimen collected in Puget Sound, Washington (Baird and Girard 1852). Still, throughout the mid- to late-1800's the western pond turtle was reported under a series of synonyms. In 1854 naturalist Edward Hallowell described the species as *Emys nigra* from a specimen collected at Posa Creek, Kern County, California (Hallowell 1859). Soon thereafter, in an April 1856 letter to Baird, fellow naturalist Louis Agassiz noted:

> I have found the reference to *Emys marmorata* and am glad it has priority over *nigra*, for that name would never do; *marmorata* is not exactly the thing either, but it is at least not so completely objectionable (Herber 1963).

In 1857 Agassiz published his ambitious "Contributions to the Natural History of the United States of America" which included a review of the embryology of North American chelonians; therein he described the species as *Actinemys marmorata* (Agassiz 1857). Other descriptions/combinations were recorded at later dates under the names *Clemmys Wosnessenskyi* (Strauch 1862), *Geoclemys marmorata* (Gray 1870), *Chelopus marmoratus* (Cope 1875), and *Clemmys Hesperia* (fossil species) (Hay 1903).

Little has been written about Strauch save for Kraig Adler's (1989) brief biography. Other contributions include Bischoff's Strauch biography (in German, Rieck *et al.* 2001) based on Adler's (1989) work, and mention of Strauch in Ananjeva's profile of the Russian Academy of Science's Department of Herpetology (1998) based again on Adler (1989) and Scarlato (in Russian, 1982).

Adler (1989) describes Strauch as the "first eminent Russian herpetologist... who succeeded in establishing St. Petersburg as a major world center of herpetology." And though Strauch was based in Russia, his work was regularly published in German, as was "typical of the St. Petersburg scientific establishment of the day" (Adler 1989). Some exceptions include papers published in French and Russian (a list of Strauch's publications is given in Appendix A). Strauch's works dealt with in this paper are his "*Chelonological Studies, With Special Emphasis On the Turtle Collection of the Imperial*

Academy of Sciences at St. Petersburg" (hereafter *"Chelonological Studies..."*) (Strauch 1862), his "*The Global Distribution of the Turtles. A Zoogeographic Approach*" (hereafter *"Global Distribution..."*) (Strauch 1865), and his "*Comments on the Turtle Collection in the Zoological Museum of the Imperial Academy of Sciences at St. Petersburg*" (hereafter "*Comments...*") (Strauch 1890).

With respect to the western pond turtle, Strauch's work is of considerable importance. Not only does his *Chelonological Studies...* (1862) include one of the earliest illustrations of the species (see Cover), it also provides some of the most extensive descriptions of western pond turtle specimens. Furthermore, his later works *Global Distribution...* (1865) and *Comments...* (1890) include re-evaluations of previous assignations set forth in his *Chelonological Studies...* (1862); namely, that several specimens of *Clemmys marmorata* had previously been listed instead as either *Clemmys insculpta* or Strauch's short-lived "new" species, *Clemmys Wosnessenskyi*.

Regarding one such specimen, Strauch wrote "Specimen No. 81, which I questionably list in my Chelonological Studies as *Cl. Insculpta* Lec., decidedly belongs not to the aforementioned species, but must be considered a *Cl. marmorata* B. et G." (Strauch 1890).

Likewise, in first describing *Clemmys Wosnessenskyi*, Strauch wrote that it "resembles our specimen *a* of *Cl. marmorata* completely in shape and arrangement of the plates, however I believe it could not be a variety of the species." Still, two paragraphs later he cautions, "I cannot completely deny the possibility that this new species may ultimately be a very irregular variety of *Cl. marmorata*" (Strauch 1862). In *Global Distribution...* (1865) Strauch again wavered in his assignation of this new species, noting: "This species [is]... most probably a very exceptional variety of the previous species [*Clemmys marmorata*]."

Alexander Strauch.
Portrait contributed by Nadejda V. Slepkova, Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

Perhaps taking a cue from Strauch's uncertainty, Gray (1872) added first *Clemmys marmorata* and then *Clemmys Wosnessenskyi* to the catalogues of the British Museum under the genus *Geoclemmys*, noting afterward that the latter "is probably only a variety of the proceeding species [*Clemmys marmorata*]." Boulenger (1889) later synonymized the two without question or comment.

A year later in *Comments...* (1890), Strauch conceded that "No. 94, which I previously described and placed in a separate species under the name *Cl. Wosnessenskyi*, also belongs to *Cl. marmorata* B. et G. and provides a further example of the extraordinary variability which this species is subject to in regard to coloration and pattern."

Given the rarity of Strauch's work today, it is not surprising that the color plate "*Clemmys Wosnessenskyi*," included in Strauch's *Chelonological Studies...* (1862) depicting the plastron, carapace, and a profile illustration of a western pond turtle shell, has never been reproduced until now. One of the varia-

tions that caused Strauch to describe the illustrated specimen as a new species was its "completely different coloration" in that the "shell is almost completely dark red-brown" (Strauch 1862). He later found a specimen with similar markings, noting that "dried specimen No. 2391, which I found by chance in the Kunstkammer only after publication of my Chelonological Studies... shows red-brown specks on the plastron, which probably means that the entire plastron originally possessed a red-brown coating" (Strauch 1890). Similar reddish markings have been observed in present-day specimens of western pond turtle particular to ponds and lakes. Individuals have been described exhibiting a uniformly dark reddish-brown plastron, a phenomenon attributed today to tannin (Holland 1994, Buskirk 2002) or iron oxide (Buskirk 2002).

This photograph of a "Pacific Coast Terrapin" was taken in May, 1934 during a Klamath River stream survey near Fall Creek, Siskiyou County, California. From the "Leo Shapovalov Collection," California Academy of Sciences, San Francisco. Courtesy California Academy of Sciences, Special Collections.

What follows is a selective translation of Strauch's work specific to the western pond turtle. Descriptions of *Clemmys insculpta* and *Clemmys Wosnessenskyi* are included as part of the *Chelonological Studies...* (1862) translation since, as described above, several specimens originally categorized therein in 1862 were later realized by Strauch to belong to *Clemmys marmorata*.

Several measures were taken to ensure accuracy and consistency through-out the translation process, and to remain faithful to Strauch's original writings; however, the translation is most likely biased toward modern English. Any misinterpretations or mistranslations are the fault of our own. The numbering assigned to footnotes in the translation is consistent with the numbering as it appeared in the original manuscript (Strauch's footnote enumeration was page-specific, not continuous).

Furthermore, this paper includes an extensive list of Strauch's known published works culled from the Zoological Institute's library and the "Literature Cited" section of Ananjeva's (1998) profile of the Zoological Institute's department of herpetology. The bibliography includes herpetological works listed separately in *Mélanges biologiques...*, a summary journal of the *Bulletin de l'Académie Impériale des Sciences de Saint-Pétersbourg*. Every volume of *Mélanges biologiques...* was published collectively, rather than as individuals in a series. The year of publication was placed on the title of every volume; under the number of every volume, the time interval was placed showing the years that were included: Tome 5 (1865-1866), for example. Where the date of publication is uncertain due to inconsistent publication records, this uncertainty is noted with a "(?)". See Appendix A: "Alexander Alexandrovich Strauch: A Bibliography of his Known Herpetological Works" at the conclusion of the translation that follows.

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This translation could not have been undertaken without the help of Dr. Igor Danilov of the Zoological Institute of the Russian Academy of Sciences who graciously gave us access to Strauch's work. Special thanks are also in order to Richard Wahlgren for his time and persistent help, to Dr. Patrick David for his contributions to Strauch's bibliography, and to Nicholas Ziesmer for aiding with the translation.

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Chelonological Studies, With Special Emphasis On the Turtle Collection of the Imperial Academy of Sciences at St. Petersburg

by
Dr. Alexander Strauch

[With 1 chromolithographic plate.]

1862

[Title Page]

20. **Clemmys insculpta** Le Conte.?

Emys insculpta Le Conte. Ann. Lyc. Nat. Hist. N. York. III. p. 112.
Emys pulchella Schw. D. et B. Erpétol. génér. II. p. 251.
Emys insculpta Le C. Holbr. N. A. Herpetology. I. p. 93. pl. XIII. (adult).

a) preserved juvenile specimen from the old collection with unknown location of collection.

Duméril and Bibron give this species the name *E. pulchella* Schweigg., however likely due to the fact that Schweigger gave them three specimens of *Emys pulchella* which he had at the Museum of Paris [1]) in order to see if their specimen matched characteristics of any previously known species, they could not adopt this name, because while Schweigger had described similar plastrons as <*cartilagine testae adnexum*>, no other characteristics of their specimen matched descriptions of any other species, thus they called *Emys pulchella Testudo pulchella* Schoeff's, which is known to be based on the young of the common European swamp turtle *Emys lutaria* Mars. In the same way, few have adopted the name *Emys scabra* either, in which Say [2]) included this species in 1825 with the idea that they were in fact *Testudo scabra* Linné's, but the latter, which incidentally is briefly expressed and poorly diagnosed, most probably [3]) refers to the young of the *Cl. punctularia* Daud., and so the name *Cl. insculpta* Le C. remains, which, although the most recent, is still the most legitimate.

The only specimen in our collection, which is unfortunately not in the best condition and is missing several disc and edge plates, is so reminiscent of the young of the animal *Emys lutaria* Mars. through its coloration and through the plastron which has a flat edge on both sides, that I would have easily counted it among the aforementioned species were not its plastron so distinctive that it had to be placed in the genus *Clemmys*. It is well known that the

[1] Schweigger (Prodrom. Monogr. Chelonior. p. 35) said at the conclusion of the description of his *Emys pulchella*: <Vidi specimina tria in museo Parisieasi> and from that I assume that the author of the Erpétologie génerale examined these three specimens, even though Prof. A. Duméril did not cite them in his Catalogue méthodique, where he always drew the available original specimens in the Parisian Museum very accurately; Holbrook (N. A. Herpetology I p. 97) is of a different opinion and maintains that Schweigger, who visited the Museum des Jardin des plantes in the year 1809, could find no evidence of this species in existing museum specimens, and according to Prof. A. Duméril, similar specimens would not be sent there until much later by Messrs. Marcou and Le Conte. I am undecided if and to what extent Holbrook is correct.

[2] Journ. Acad. Nat. Sc. Philadelph. IV. p. 120

[3] Agassiz (Contributions I. p. 434) considers the *Cl. serrata* Daud. to in fact be the *Testudo scabra* Lin., albeit incorrectly.

main difference between the genera *Emys* [4]) and *Clemmys* lies in the structure of the plastron, which is comprised of two relatively movable pieces, the first of which is fastened to the carapace with a synchondrosis, while the other exists as a single piece and bears a bony sternocostal suture: furthermore the sternal wings of *Emys* are small and bent slightly outwards, so that the plastron lies almost even with the lower edges of the carapace, whereas in *Clemmys* the wings appear wider and more strongly bent outward, and therefore the plastron never lies even with the edges of the carapace; finally one finds the sternocostal suture in *Emys* to be a relatively deep, longitudinal groove covered in soft skin, which is obvious even in the suture's cartilaginous state, while in *Clemmys* there is no trace of this groove.

Our specimen shows all the characteristics of the genus *Clemmys*; its plastron has no sign of a hinge between the pectoral and abdominal plates and I have satisfied myself through repeated introduction of a scalpel's point into the sternocostal suture that it is fastened to the carapace with synostosis, so I can therefore safely conclude that the sternocostal suture is lacking, and it must now be asked on which species this genus was based [1]).

From the above comment, that our specimen resembles the young of *Emys lutaria* Mars., one concludes that it can only belong to *Cl. insculpta* Le C., yet this species is grouped under the Clemmys, which based on coloration and drawings of the shell most closely resembles the common european swamp turtle, and indeed our piece quite closely matches *Cl. insculpta* Le C. in both the shape and color of the shell and in the shape of the individual plates, but deviates not insignificantly in so far as the head, which is missing its epidermis, has light vermiculations on a brownish-grey background, and the yellowish-brown extremities have indistinct light longitudinal bands on their extensor sides. Based on these differences the piece closely resembles the *Cl. marmorata* Baird. et Girard., but I want to refer to it as *Cl. insculpta* for the time being, because in the drawings of its scales it harmonizes more with this species than any other; you see, while the carapace of the *Cl. marmorata* shows up as fine black vermiculations on brownish-yellow a background or as fine yellowish vermiculations on a dark brown background, my piece has yellowish radial markings on a dark brown background, which spread so freely toward the edges of the plates, that the individual plates seem to have dark brown radii on a yellow background which become more strongly pronounced beyond the areola of the plate; even so, the plastron of my specimen is also light yellow and has a blurry, dark brown spot on every plate in its outer angle, which also more closely resembles the plastron of *Cl. insculpta* Le C. than that of *Cl. marmorata* B. et G.

Measurements: Carapace 5.9 long; 4.6 wide. Height of the animal 2.4. Plastron: linea alba and entire length 5.5. Front piece 1.7 long; 3.2 wide. Rear piece 2.3 long; 3.2 wide. Wing length 1.5.

Habitat. The location where our piece was found is unknown; according to Agassiz (Contributions I. p. 443) the true *Cl. insculpta* Le C. inhabits the northeastern part of the United States of North America and goes no further south than New Jersey.

[Pages 104-106]

N.B. The layout of the original article was preserved where feasible. An exception was page breaks due to obvious space limitations. Nevertheless, the original footnote enumeration was preserved for consistency – no matter where a footnote appears herein, if Strauch numbered it "4)", then it appears as footnote "4)" even if it is the first to appear on a page.

[4] I took the following characteristics of this genus from *Emys lutaria* Marsil., which was the only species in this group available to me.

[1] The aforementioned fact that the plastron is braced on both sides in no way contradicts the inclusion of this piece in the genus *Clemmys*, since according to Agassiz the rear of the plastron seems almost always to be braced in the young of Clemmys, and also in that species, whose adults have a deep triangular outer rim. Cf. Agassiz Contributions II. I-VI.

22. **Clemmys marmorata** Baird. et Girard.

Emys marmorata Baird. et Gir. Proceed. Acad. Philad. VI. (1852.) p. 177.
Actinemys marmorata Baird. U. St. Expl. Exped. Herpetol. p. 465. pl. XXXII. [1])
Emys nigra Hallow. P. R. R. Survey. X. 1858. Rept. p. 3. pl. I. (adult).
Actinemys marmorata Agass. Contributions I. p. 444. II. Pl. III. f. 5—8. (pull.)

a) et b) adult stuffed specimen (♂) from California. H. Conserv. Wosnessensky. 1843

c) Shell of adult specimen (♀) from California. H. Conserv. Wosnessensky. 1843

This species, which differs from others of its genus by the roughly pear shape of its flat-arched carapace and most importantly through the coloration and markings of its shell, was first diagnosed in the year 1852 by Baird and Girard based on juvenile specimens and although later both Hallowell [2]) as well as Girard provided detailed descriptions and illustrations, I want to carefully describe them again here, because my specimens differ from the above descriptions in several, not insignificant ways.

Description. ♂. The flat-arched carapace is slightly greater than a quarter longer than it is wide and its height totals approximately one third of its length; the horizontal perimeter similarly represents a nearly pear-shaped figure, in that on the flanks, in the region of the of the 2nd marginolateral plate, features a distinct constriction, behind which it widens noticeably: in front, where the neck region is rimmed more or less triangularly, it appears rounded laterally and in the back, where it possesses between the caudal plates a very small likewise triangular neckline, it is completely rounded off; such that this rear section of the carapace, from the above mentioned constriction on, appears nearly circular and describes approximately 3/4 of a circle. The vertical contour line is very faint and regularly arched, but drops steeply in the rear, as in the front; a cross section would give a line which in the region of the outer plates which drops off more or less diagonally outwards, appearing distinctly and regularly arched along the length of the costal plates and nearly horizontal on the vertebrae or, when the keel is strongly pronounced, forming a very large, obtuse angle.

The edge is either nearly uniformly weakly inclined all over or it appears (as in *b*) somewhat recessed and subvertical on the flanks; it begins quite wide (high) in front in the marginocollar region, gradually becomes smaller through to the first marginolateral plate, where it shows the smallest degree of its width (height), then increases very gradually in width again, achieves its maximum on the marginofemoral plate and runs from there, generally becoming smaller, into the intercaudal side of the tail plate.

The plastron, which is smaller in length than the carapace, appears quite wide and slightly concave in the region of the femoral and abdominal plates; in front it is rounded, however in back it is rounded out slightly triangularly and its forelobe, which exceeds the wings slightly in length, is always smaller [1]) at the base than the hindlobe; the sternal wings are quite wide and slope upward toward the edge, thereby the place at which they join with the plastron appears extremely weak, at times barely noticeably keeled.

N.B. See comment regarding footnotes and layout on the preceding page.

[1] As stated earlier (pag. 61), I am missing the plates of this work.

[2] Hallowell (Proceed. Acad. Philad. VII. 1854, p. 91) described this species using a specimen with a plain black carapace like *Emys nigra*.

[1] Baird and after him Dr. Cooper (P. R. R. Survey XII. part. II. p. 292) state that the forelobe of the plastron is wider than the hindlobe, yet this completely contradicts not only my specimens, but also the illustrations cited above, published by Agassiz and Hallowell.

The neck plate is a small oblong parallelogram, the marginocollar plate is square and just as long as it is wide; its outer edge, which is the free edge, appears somewhat bowed, its vertebral side somewhat curved and its nuchal side very short. Both marginobrachial plates would be trapezoidal with bowed bases at the free edges, if it weren't for the fact that in each the rear intermarginal side is shorter than the front. The first and third marginolateral plates are lopsided parallelograms which are overly inclined in the rear, and which are longer than wide (high), the second and fourth would share the same shape if their discoidal side did not form an obtuse angle, and the last of the plates to be mentioned completely resembles the first marginobrachial plate, except that it is reversed such that the front intermarginal side is shorter than the rear. The first and last marginofemoral plates, the largest of all the edge plates, are pentagonal since their discoidal sides form an obtuse angle prior to the middle; of its angles only the anterior is sharp, while the remaining four are obtuse. The second marginofemoral plate is a nearly equilateral parallelogram, which is inclined slightly to the rear. In the square caudal plate the intercaudal side is only half as long as the opposite side, and of the four angles, both on the adjacent intercaudal side are rounded obtusely, the anterior (outer) is sharp and the anterior upper either is a right angle or slightly larger.

The first vertebral plate is pentagonal, yet its central front angle, which contacts the neck plate, is obtuse, leaving three sides bordering on the rim, the central or nuchal side of which is obviously extraordinarily short; both of the lateral sides are distinctly shorter than the posterior or intervertebral sides, but vary in length according to the anterior diameter of the plate, the length of which is equivalent to or slightly exceeds one quarter. The costal sides run parallel to the wavy marginocollar sides such that the concavity of the anterior part, which lies closer to the edge, is directed outward, the opposite directed inward. Accordingly then, the anterior plates appear somewhat widened, and also its angles differ: in *a*, where the plate is very wide, both of the anterior outer angles, which come into contact with the first marginobrachial plate on all sides, are acutely clipped and both posterior are much larger than those on the right; contrarily in *b*, where the front of the plate is only slightly wider than the rear, both anterior outer angles are acute, but, as they do not reach the first marginobrachial plate, not clipped and both posterior are barely larger than those on the right. The second and third vertebral plates are, as usual, hexagonal and wider than long: in each the anterior intervertebral sides are somewhat shorter than the posterior and the four costal sides, which wavily parallel the intervertebrals, are all nearly the same length; all angles of this plate are obtuse, yet the anterior are larger than the posterior, and the middle angles appear somewhat emphasized. The fourth plate in this row is also hexagonal and has more greatly obtuse angles, yet in it the posterior intervertebral side is about one quarter shorter as the anterior and the posterior costal sides are about one third longer than the anterior. The last vertebral plate is a septagon with four sides on the rim and whose anterior or intervertebral side forms either an arc or a barely obtuse-angled protuberance in the front; of the four edge sides, all are shorter than the inner sides, the tail plate is contacted, and of the seven angles only the middle posterior, which protrudes between the caudal plates, is acute, while the remaining ones are obtuse.

The first costal plate has, as usual, the form of a triangle with a bowed base and a top obliquely rounded from behind reaching upwards and descending towards the front; it is somewhat shorter than it is wide (high) and both of its angles which lie on the rim are rounded, while both upper angles, which contact the vertebral plates, are in contrast obtuse. The second costal plate is one and three quarters times wider (higher) than it is long and would be a right-angled parallelogram, if its vertebral side did not appear bowed and obtusely angled; the third plate in this row has exactly the same shape, except that the marginal side on its posterior part presents a section which is rounded from the influence of the first marginofemoral plate, and it

follows that its posterior intercostal side is approximately one quarter shorter than the anterior. The last costal plate, the smallest of the row, has the appearance of a triangle, but is actually a hexagon, as it has three sides on the edge, of which the middle, which borders the second marginofemoral plate, is probably as long as both of the others together; its angles are all obtuse, yet the posterior upper and anterior lower are nearly right angles.

The plastron, both of whose pieces appear slightly concave in the abdominal and femoral regions, is incidentally in *a* flat or slightly concave and is weakly keeled in the position where the wings protrude, while contrarily in *b* it is more convex and more rounded at the base of the wings. The gular plates are right triangles, whose short forward-pointing sides are slightly bowed and in *a* whose outer acute angles appear somewhat rounded. The brachial plates are four sided, but resemble triangles, whose outwardly pointing base is bowed and whose point lying in the linea alba is obliquely rounded from behind reaching upwards and descending towards the front. The pectoral plates have, if one leaves out the parts that help form the wings, the approximate shape of a lopsided parallelogram whose inner posterior and outer anterior angles are acute. The abdominal plates, not including the part which the wings cover, would have the form of a right-angled parallelogram, if their inner sides which are grounded in the linea alba did not appear somewhat shorter than the outer and if this did not therefore result in the anterior inner angles being obtuse. The femoral plates are four sided, but each resembles a right triangle, whose outwardly placed base is rounded and whose point, which lies in the linea alba, is obliquely rounded; the hypotenuse of this triangle, which here composes the anal side, proceeds not linearly, but rather possesses in its outer third a convexity which is pointed away from the anal plates. Finally, these last plates would be rhombi, if their sides corresponding to the free edge were not shorter than those opposite them. The axillary and inguinal plates are rudimentary.

The sculpture of the plates consists on the plastron of relatively clear concentric bands and very light areoli which lay in the posterior outer neck of each plate; on the carapace the concentric bands are only on the edge plates, which at times possess very light areoli, clear to some degree, but lacking in the disc plates except for fairly shallow, often invisible fine edge stripes, to which on the under side of the costal plate yet another relatively clear shallow groove, which runs parallel to the longitudinal axis of the animal, is added. The vertebral keel is very weakly developed and is most visible only on the two last vertebral plates, while on the others it is entirely absent and only in *a* on the first vertebral plate in the middle of its posterior half is a trace remaining. It is worth noting that in *b*, covering the entire carapace is a collection of shallow, faint, irregularly shaped and distributed dimples and that its last vertebral plate appears swollen along the marginal edge like the many-sided last costal plate, so much so that the outer edge is about 2" smaller in width than the impinging part of the plate's center.

Viewed from above, the head is a triangle whose point is rounded, its surface subconvex, its sides dropping away sharply, and the bracing on the snout running slanted from the top front to the bottom rear. The eyes are fully lateral and the jaws quite strong and completely rounded; the upper jaw has at its apex a deep, triangular hollow, into which the upward pointing tip of the lower jaw fits. The feet are of a common form, with strong claws and interdigital membranes that stretch to the nails, the tail conical, very pointed and quite long, yet equaling the posterior sternal lobes in length (measured from the posterior edge of the cloacal opening). The skin that covers the head is completely smooth, on the neck it appears to be divided into small compartments because of fine, shallow grooves, and on the extremities, excepting the smooth forearms, are large parquetted scales that are round or polygonal. Those on the forearms are considerably larger than those on the shins, and especially on the extensor side the first 4-5 very large ovate scales overlap one another; in addition one finds on the outer

sides of the forearms, from the elbow joint to the small finger, a row of twelve similar scales which gradually increase in size, some of them appearing more oblong than others. On the flexor side above the wrist joint one sees a transverse row of five and covering them, 2-3 similar, but larger and very flat scales which are closer to the outer edge than the inner edge. On the shins, beneath the hollow of the knee, exists a small vertical seam in the skin, and on the outer side of the heel yet another, which is noticeably studded with large scales. The tail has on its ridge a row of keeled scales, which appear smaller and more strongly keeled toward the tip; in its remainder it is equally studded with scales which are organized into longitudinal rows, and on the side of the tail's base appearing even as tuberculous as on the posterior side of the thigh. These tuberculous scales are barely noticeable in *b*.

In regard to the coloration of the carapace, this species seems to vary greatly; Girard claims to have observed specimens some of which bore a black reticular pattern on a light green or olive green background while others had it on a nut-brown or hazel or olive-brown background and Hallowell based his *Emys nigra* on a piece with a completely black carapace; according to Girard the carapace can be either fully dark brown, light olive, or yellowish with black borders around the plates and on occasion with black specks. My specimens vary from those above and are shaped and colored as follows: the carapace of specimen *a* appears light yellowish-brown and on all plates exists a crowded black worm pattern, which has a mostly radial arrangement on the vertebral plates and is blurred only on the three middle marginal plates and the lower parts of the costal plates, where the background color is more prominent; on the remaining edge plates is in fact a mixture of black and light brown, yet the vermiculations do not always manifest themselves noticeably. The plastron is yellowish and on the posterior outer angle of each plate is a black speck that is large in some and small in others, which on the abdominal plates stretches into short, partly blurred rays. Specimen *b* is identical to *a*, except that the yellowish-brown space beneath the black worm pattern on the plates is so thin and small that one might mistake it for black with a fine yellow worm pattern; also there is a touch of dark brown on the lowest parts of its first three costal plates. This specimen's plastron is also yellowish and features black specks on the individual plates, yet they are for the most part smaller and more irregular. The head of both specimens is brown with a black worm pattern, which for the most part runs parallel to the longitudinal axis; the jaws are yellow and are either scattered with black specks, or the upper jaw, as in specimen *a*, has vertical black stripes. The neck, the extremities, and the tail, are light or dark olive-brown, more yellowish brown on the undersides, and the large scales on the extensor sides of the forearm, which are mostly light in color, each have a black speck of some sort.

(***Q***) Specimen *c*, which I assume is female based on its completely flat plastron, has a shorter and wider form, and the constriction on the second marginolateral plate is barely pronounced. It completely resembles specimen *a* in color and shape, except that its plastron is almost uniformly pale yellow, and the black specks are only present on some plates in irregular and asymmetric arrangements; the form and sculpture of the individual plates coincides quite well in fact with specimen *b*, but differs in ways worth mentioning. The borderline of the plastron, which separates the femoral and anal plates, forms a dark, continuous arc with the convexity pointed frontwards, and the linea alba runs in a zigzag between the anal plates. Additionally the last two vertebral plates lack a keel, with only a bump-shaped protrusion on the first vertebral plate, and the anterior or intervertebral edge of the last plate of the middle row is straight. Finally, the two caudal plates form at their seam a definite rooflike protrusion with a rounded ridge, because the outer part of each of the plates, which contacts the last marginofemoral plate and constitutes a triangle with the base posterior, lies horizontal, while the inner part of the plate directly contrasts, mimicking the form of a triangle whose base is

anterior, up against the vertebral plate, is strongly curved from right to left, and lies in a more vertical plane. The rooflike arrangement of the caudal plates, which is normally found only in male turtles, seems to conflict with the flat plastron, which is mostly associated with females, but because of its short, stout shape and completely flat and even plastron, I deem this specimen to be female.

Measurements:	*a*	*b*	*c*
Carapace length…	16,3	14	16
“ width….	11,8	10,1	12,4
Height of animal…	5,3	5,2	5,5
Plastron: linea alba…	14,2	12	14
“ total length…	14,8	12,7	14,6

	a	*b*	*c*
Forelobe length…	4,4	4	4,1
“ width…	8	7,1	8,3
Hindlobe length…	6,2	5,2	6,1
“ width…	8,3	7,4	9,1
Wing length…	4,2	3,5	4,4

Habitat. This species has been found only in California and Oregon. Mr. Wosnessensky, Conservator of the zoolog. museum, found our three specimens in 1841 in a small lake near Little Bodega Bay in Northern California; Girard, Hallowell, Agassiz, and Dr. Cooper specify Puget Sound and the Columbia River in Oregon, and San Francisco, the Rio Sacramento, and Posa Creek in California as alternate locations.

[Pages 108-114]

23. **Clemmys Wosnessenskyi** n. sp.
(refer to plate)

a) Shell of an adult specimen from California. Mr. Wosnessensky, Conservator. 1843.

The above mentioned shell, except for a few, potentially individual variations, resembles our specimen *a* of *Cl. marmorata* completely in shape and arrangement of the plates, however I believe it could not be a variety of the species, since aside from completely different coloration, it also has a differently shaped plastron. The difference in the latter’s form is that, in the above mentioned shell the forelobe is wider at its base than the hindlobe, while in *Cl. marmorata* the opposite is true, as I have completely satisfied myself through examination of the 3 specimens of our museum and the illustrations published by Hallowell and Agassiz; the latter statement stands in contradiction with the diagnosis [1]) published by Girard, since according to this author the anterior sternal lobe of the species should be wider than the posterior, and it clearly follows from this remark that the width of the two sternal lobes is variable and therefore cannot be considered a differentiating feature, unless a case arose which made me doubt the correctness of Girard’s statement. Dr. Girard says specifically in the description of his *Cl. marmorata* (l. c. p. 466): <<As the latter (the males) grow up, the abdominal or posterior half of the plastron dilates somewhat at the expense of the anterior or thoracic half>> and thus concedes, in contradiction with the diagnosis, that at least in the adult males the hindlobe of the plastron is wider than the forelobe. In my experience this relationship also exists in females, and in fact to a greater degree, and since Agassiz drew the posterior sternal lobe equally wider than the anterior in his illustration of the juvenile *Cl. marmorata*, I must assume that Dr. Girard most probably acquired his data on this point only by eye, and was, as occurs so often, misled.

Aside from the even width ratio of the two lobes of the plastron, which can serve as a differentiating feature, this shell shows differences with the previous species in the coloration

[1] U. St. Expl. Expedition. XX. Herpetology p. 465

of both its carapace and plastron, particularly the former. While in *Cl. marmorata* the carapace has a light, multicolored base invariably covered with black vermiculations, and only through the prevalence of these vermiculations may it sometimes appears completely black, that of this shell is almost completely dark red-brown, excepting a few scattered, mostly irregularly shaped light red-brown specks, and on the three middle vertebral plates a very dark, nearly black color is apparent, upon which traces of fine, light lines of specks can be seen. In fact Dr. Girard has also illustrated a dark chestnut-brown variety of the *Cl. marmorata*, yet this one presents, as far as I can tell from the description [1]), quite noticeable black vermiculations, and would harmonize somewhat with our specimen *b*, which also has a touch of dark brown on the underside of the costal plates, except that in this shell, as one can tell from the following description and attached illustration, there is no trace of the black vermiculations to be found.

From what has been previously said, it follows that this shell which so closely resembles *Cl. marmorata* deviates both by its differently shaped plastron, whose forelobe is decidedly wider than the hindlobe, and by the coloration and pattern of the carapace and plastron, and since there is no known intermediate between the brown variety of the above species and this specimen, it must further be considered the type of a new species. Yet since I have only a single shell at my disposal and I know nothing of the head, extremities, or tail, I cannot completely deny the possibility that this new species may ultimately be a very irregular variety of *Cl. marmorata*.

Description. As I stated above, this species bares a remarkable resemblance to specimen *a* of the *Cl. marmorata* in the shape of the shell and the arrangement of the plates, and differs somewhat in only a few minor points, the specifics of which I simply do not wish to cover; thus it also appears to me to be superfluous to give a detailed description, and I believe that it will be sufficient if I simply restrict myself to the differences in the following section.

In reference to the carapace it is only worth noting, that it is only slightly wider and the vertebral plates appear noticeably rooflike. The plastron, which is weakly bent in along the length of the seam between the femoral plates, closely resembles that of the previous species because of the previously touched-upon width ratio of its two lobes, and only the bracing on its anterior end is less noticeable, since the short sides of each of the two right-angled gular plates, which are swept forward, are more strongly bowed, thus making the front of the plastron appear nearly round; its plates present no differences, except that the gular plates are shaped such that the left is shorter than the right. The edge of the carapace differs insofar as one does not find its widest (highest) spot in the area of the first marginofemoral plate, as in *Cl. marmorata*, rather one finds it in the last marginofemoral plate, and of the individual edge plates, only the nuchal and caudal plates merit any special mention. Pertaining to the former, it is in fact four sided, and considerably longer than wide, but decreases rather considerably in size toward the front, resembling a triangle whose point is rounded; its posterior side, which borders the first vertebral plate, has a shallow indentation in the middle. In regard to the caudal plates, I must mention that each has a very distinct figure which is difficult to describe, insofar as both of their angles on the vertebral side, but especially the anterior (outer), are strongly rounded and as a result, the intermarginal side forms a regular, uninterrupted arch with the vertebral side; otherwise, the latter plates differentiate themselves from those of *Cl. marmorata* insofar as they are smaller in both the horizontal dimension (length) and the vertical (height). Finally, of the disc plates only the last vertebral plate presents any significant difference, as of its four marginal sides the two outer ones, each of which contacts part of the many sided last marginofemoral plate, are approximately one quarter longer than inner ones, each of which border on one of the caudal plates, while in *Cl. marmorata* the opposite is true.

[1] As I previously stated on page 61, footnote 2, I do not have the illustration at my disposal.

The sculpture of the shell is much the same as that of the previous species, except that all of the vertebral plates possess the hint of an extremely weakly pronounced broad keel, which on the fourth plate of this row becomes a keel which is small, blunt, and surrounded on all sides by regular, shallow dimples; such dimples are also found on the two previous vertebral plates, where they are on the rear edge near the vestigial keel, and on the mariginocollar plates, where on each in the outer posterior angle a somewhat larger dimple can be seen.

The color of the carapace is a very dark red-brown, which becomes black in places on the three middle vertebral plates and on the upper part of the costals, and on the former plates are traces of fine, brownish-green bars, which are arranged radially. On all of the costal plates except the last, one sees at times irregular light brownish-red specks, which are especially large and noticeable on the lower part of the second plate, and on the marginolateral and marginofemoral plates one finds similarly colored specks, which mostly appear in the form of an oblong splotch on the free outer edge of the plate. The background color of the plastron and the underside of the edge of the carapace is bone-yellow, though all of these parts are covered with a brown-red color, such that the actual background color shows only in certain places, which appear to have been rubbed down; on the suture between the abdominal and femoral plates one finds a blackish trace of a somewhat round shape, and the posterior outer angle of each lower marginal plate has a black speck of varying sizes, which on occasion intrudes onto a part of the posterior intermarginal side.

Measurements. Carapace 17.9 long; 13.8 wide. Height of animal 6.4. Plastron: linea alba 16.4; total length 17.3. Forelobe 5.2 long; 9.5 wide. Hindlobe 7.3 long; 9.3 wide. Wing length 4.8

Habitat. This species was discovered in 1841 by Mr. Conservator Wosnessensky, to whom I dedicated it, in the Rio Sacramento of California.

[Pages114-117]

The
Global Distribution of the Turtles
A Zoogeographic Approach

by
Dr. Alexander Strauch

1865

[Title Page]

55. **Clemmys marmorata** Baird et Girard.

Emys marmorata Baird et Girard. Proc. Acad. Philad. VI. (1852) p. 177.
Clemmys marmorata Baird et Girard. Strauch. Chelonol. Studien. p. 108.
Actinemys marmorata Baird. U. St. Expl. Exped. Herpetol. p. 465. pl. XXXII. (adult.).
Actinemys marmorata Agass. Contributions. I. p. 444. II. pl. III. f. 5—8. (pull.).
Emys nigra Hallow. P. R. R. Survey. X. 1858. Rept. p. 3. pl. I. (adult.).

Habitat. *Cl. marmorata* inhabits only the west coast of North America, namely the territories of Washington and Oregon, as well as Upper California, but by all appearances does not penetrate very far inland, instead being restricted to a relatively small strip along the coast. Dr. Cooper [4]), who has visited the Washington territory, states that they occur throughout ponds and rivers west of the Cascade mountains, though are less common in the Columbia River than in warmer ponds; simultaneously, he makes the wholly logical assumption that the turtles which Mr. Gibbs saw in the mouth of the Yakima, a tributary of the Columbia, will have also belonged to this species. Regarding the occurrence of *Cl. marmorata* in Oregon, they have up to now only been observed in Puget Sound [5]), while in Upper California they are to be found in the Rio Sacramento [6]), in a lake at Little Bodega Bay [7]), in the vicinity of San Francisco [8]), also in Posa-Creek [9]), where they should be very common, and finally also in the vicinity of Monterey [8]); they do not appear to occur any further south, and their range extends from approximately 46 to 36º North.

56. **Clemmys Wosnessenskyi** Strauch

Clemmys Wosnessenskyi Strauch. Chelonol. Studien. p. 114. tab. (adult.).

Habitat. This species, which is, as I have already commented elsewhere, most probably a very exceptional variety of the previous species, was found in Upper California in the Rio Sacramento by Conservator Wosnessensky in the form of two specimens, only one of which, an incomplete shell which I have described, reached its destination, while the other, which retained the head, extremities, and tail, unfortunately went missing during the return trip.

[Pages 68-69]

[4] P. R. R. Survey. XII. part. II. p. 292.

[5] Proc. Acad. Philad. VI. p. 177.

[6] U. St. Expl. Exped. Herpetol. p. 470.

[7] Strauch. 1. c. p. 114.

[8] Agassiz. 1. c.

[9] Proc. Acad. Philad. VII. p. 92.

Comments
on
the Turtle Collection
in the Zoological Museum
of the Imperial Academy of Sciences at St. Petersburg

by
Dr. Alexander Strauch

With 4 photographic plates

1890

[Title Page]

49. **Clemmys marmorata** Brd. and Grd.

Emys marmorata Baird and Girard. Proc. Acad. Philadelph. 1852, p. 177.
Clemmys marmorata Boulenger. Catal. of the Chelonians etc. p. 110.
Emys nigra Hallowell. Rep. U. S. Explor. Survey Rail Road X. Rept., p. 3, pl. I.
Clemmys insculpta Strauch. Chelonol. Studien, p. 104, No 20.
Clemmys marmorata Strauch. Chelonol. Studien, p. 108, No 22.
Clemmys Wosnessenskyi Strauch. Chelonol. Studien, p. 114, No 23 c. tab.

81 in Alcohol (59 mm.)	Location Unknown ?	Kunstkammer.
90 Stuffed (163 mm.)	Little Bodega (Calif.)	Mr. Wosnessensky 1843.
91 Stuffed (140 mm.)	Little Bodega (Calif.)	Mr. Wosnessensky 1843.
92 Shell (160 mm.)	Little Bodega (Calif.)	Mr. Wosnessensky 1843.
93 in Alcohol (106 mm.)	California	Godeffroy Museum 1870.
94 Shell (178 mm.)	Rio Sacramento	Mr. Wosnessensky 1843.
2391 Dried (133 mm.)	Location Unknown ?	Kunstkammer.
4623 in Alcohol (149 mm.)	Rio Sacramento	Dr. Steindachner 1876.
4624 in Alcohol (199 mm.)	Rio Sacramento	Dr. Steindachner 1876.

Specimen No. 81, which I questionably list in my Chelonological Studies as *Cl. insculpta* Lec., decidedly belongs not to the aforementioned species, but must be considered a *Cl. marmorata* B. et G. in which the yellow color of the carapace is so prevalent that the shell appears as dark radii on a yellow background. Similarly, although certainly to a lesser degree, the yellow developed in our specimen No. 4623, and because the black is in no way inferior one is almost in doubt whether the carapace of this specimen has yellow vermiculations on a black background, or black on yellow. In piece No. 4624, whose size suggests that it is very old, the yellow color is likewise predominant, because on the carapace only the vertebral plates and the upper (inner) half of the costals appear darker, namely greenish-gray, while almost the entire area of the shell is colored yellow like the plastron; light traces of the other existing vermiculations are found only in the form of blackish, very faint yellow vermiculated specks of widely varying shape and arrangement on the vertebral plates. Dried specimen No. 2391, which I found by chance in the Kunstkammer only after publication of my Chelonological Studies, possesses a black carapace with yellow vermiculations, but shows red-brown specks on the plastron, which probably means that the entire plastron originally possessed a red-brown coating, which gradually, as a consequence of wear, became irregular until relatively faded specks disappeared. The shell of No. 94, which I previously described and placed in a separate species under the name *Cl. Wosnessenskyi*, also belongs to *Cl. marmorata* B. et G. and provides a further example of the extraordinary variability which this species is subject to in regard to coloration and pattern.

[Pages 72-73]

Appendix A

Alexander Alexandrovich Strauch: A Bibliography of his Known Herpetological Works

Mémoires de l'Académie Impériale des Sciences de St.-Pétersbourg, VII^{e} série (Quarto)

1862. Essai d'une erpétologie de l'Algérie. Tome 4, N^{o} 7: (ii), 1-86.

1862. Chelonologische Studien, mit besonderer Beziehung auf die Schildkrötensammlung der Kaiserlichen Akademie der Wissenschaften zu St.-Petersburg. Tome 5, N^{o} 7: (ii), 1-196, pl. 1.

1865. Die Vertheilung der Schildkröten über den Erdball. Ein zoographischer Versuch. Tome 8, N^{o} 13: (ii), 1-207.

1866. Synopsis der gegenwärtig lebenden Crocodiliden, nebst Bemerkungen über die im Zoologischen Museum der Kaiserlichen Akademie der Wissenschaften vorhandenen Repräsentanten dieser Familie. Tome 10, N^{o} 13: (ii), 1-120, pl. 1, map 1.

1869. Synopsis der Viperiden, nebst Bemerkungen über die geographishe Verbreitung dieser Giftschlangen-Familie. Tome 14, N^{o} 6: (ii), 1-144, pls. 1-2.

1870. Revision der Salamandriden-Gattungen nebst Beschreibung einiger neuen oder weniger bekannten Arten dieser Familie. Tome 16, N^{o} 4: (ii), 1-110.

1873. Die Schlangen des Russischen Reichs, in systematischer und zoogeographischer Beziehung geschildert. Tome 21, N^{o} 4: (ii), 1-288, pls i-vi.

1887. Bemerkungen über die Geckoniden-Sammlung im zoologischen Museum der kaiserlichem Akademie der Wissenschaften zu St. Petersburg. Tome 35, N^{o} 2: (ii), 1-74, pl. 1.

1890. Bemerkungen über die Schildkröten-sammlung im zoologischen Museum der kaiserlichem Akademie der Wissenschaften zu St. Petersburg. Tome 38, N^{o} 2: (ii), 1-128, pls. 1-4.

Bulletin de l'Académie Impériale des Sciences de Saint-Pétersbourg (Quarto; the pagination is by columns with two columns per page.)

1863. Characteristik zweier neuen Eidechsen aus Persien [Lu le 18 septembre 1863]. T. 6: 477-480. (This volume was printed as one issue)

1866. Über die Arten der Eidechsengattung Cyclodus Wagl. [Lu le 7 juin 1866]. T. 10, N ?: 449-462. [As cited in Mélanges biologiques…; not seen.]

1868. Bemerkungen über die Eidechsengattung Scapteira Fitz. [Lu le 31 octobre 1867]. T. 12, N 4: 313-328.

1868. Über die Arten der Eidechsengattung Ablepharus Fitz. [Lu le 28 novembre 1867]. T. 12, N 4: 359-371.

1868. Über Adanson's crocodile noir Entgegnung auf Dr. J.E. Gray's gleichnamige Notiz [Lu le 16 avril 1868]. T. 13, N 1: 51-60. [As cited in Mélanges biologiques…; not seen.]

1868. Über Eichwald's Tomyris oxiana, eine Giftschlange aus der Familie der Elapiden [Lu le 14 mai 1868]. T. 13, N 1:. 81-94. [As cited in Mélanges biologiques…; not seen.]

1882. Bemerkungen über die Eidechsen-familie der Amphisbaeniden [Lu le 10 novembre 1881]. T. 28, N 1: 45-131.

1884. Bemerkungen über die Schlangengattung Elapomorphus aus der Familie der Calamariden [Lu le 20 novembre 1884]. T. 29, N 4: 541-590.

Mélanges biologiques tirés du Bulletin de l'Académie Impériale des Sciences de St.-Pétersbourg (Octavo)

1864(?). Characteristik zweier neuen Eidechsen aus Persien. Tome IV: 393-398. (Aus dem Bulletin, T. vi, pag. 477-480.)

1866. Über die Arten der Eidechsengattung Cyclodus Wagl. Tome V: 763–780. (Aus dem Bulletin, T. x, pag. 449-462.)

1867. Bemerkungen über die Eidechsengattung Scapteira Fitz. Tome VI: 403-426. (Aus dem Bulletin, T. xii, pag. 313-328.)

1867. Über die Arten der Eidechsengattung Ablepharus Fitz. Tome VI: 553-570. (Aus dem Bulletin, T. xii, pag. 359-371.)

1868. Über Adanson's crocodile noir Entgegnung auf Dr. J.E. Gray's gleichnamige Notiz. Tome VI: 622-635. (Aus dem Bulletin, T. xiii, pag. 51-60.)

1868. Über Eichwald's Tomyris oxiana, eine Giftschlange aus der Familie der Elapiden. Tome VI: 636-654. (Aus dem Bulletin, T. xiii, pag. 81-94.)

1881(?). Bemerkungen über die Eidechsenfamilie der Amphisbaeniden. Tome XI: 355-479. (Aus dem Bulletin, 1882, T. xxviii, pag. 45-131.)

1884. Bemerkungen über die Schlangen-gattung Elapomorphus aus der Familie der Calamariden. Tome XII: 141-211. (Tiré du Bulletin, T. xxix, pag. 541-590.)

Commissionäre der Kaiserlichen Akademie der Wissenschaften, St. Petersburg (Octavo)

1889. Das Zoologische Museum der Kaiserlichen Akademie der Wissenschaften zu St. Petersburg in seinem Fünfzigjährigen Bestehen. St. Petersburg, 1889. iv, 372 pages., 2 plates [In German; there is also a Russian version of 1889].

In Russian

1868. О ядовитых змеях, водящихся в России. В кн.: Труды первого съезда русских происходившего с 28 декабря 1867 по 4 естествоиспытателей в С.-Петербурге, января 1868 г. Санкт-Петербург, Отделение зоологии. С. 271-297.

[1868. Venomous snakes living in Russia. In: Proceedings of the 1st Symposium of Russian naturalists held in St. Petersburg from 28 December 1867 to 4 January 1868. Zoological session. The printing-house of the Imperial Academy of Sciences. Pages 271-297]

1876. Пресмыкающиеся и земноводные. (Обработаны академиком А. Штраухом). В кн.: Монголия и страна тангутов. Трехлетнее путешествие в восточной нагорной Азии Н. Пржевальского, подполковника Генерального Штаба, действительного члена Императорского Русского Географического Общества. Том II. Отдел III. Санкт-Петербург, iii, 55 с., 8 табл.

[1876. Reptilians and amphibians. (Examined by academician A. Strauch). In: Mongolia and the Tanguts country: Three year explorations in mountain areas of East Asia by N. Przewalsky, lieutenant-colonel of the General Staff, fellow of the Imperial Russian Geographic Society. Vol. II, chapter III, iii, 55 pages, 8 plates.].

1888. Речь, произнесенная на чрезвычайном собрании Императорского Русского Географического Общества 9 ноября 1888 г., посвященном памяти Н.М. Пржевальского. // Известия Императорского Русского Географического Общества. Том XXIV, вып. IV. С. 249-257.

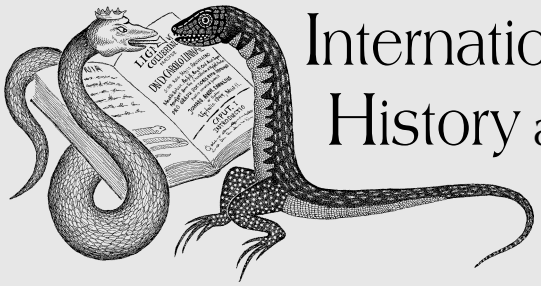
[1888. A speech delivered in the extraordinary session of the Imperial Russian Geographic Society on 9 November 1888, dedicated to the memory of N.M. Przewalsky. Proceedings of the Imperial Russian Geographic Society, Vol. 24, N 4: 249-257.]

1889. Зоологический музей императорской Академии наук. Пятидесятилетие его существования. Обзор основания, постепенного расширения и современного состояния музея. СПб, ii,372 с., 2 л. план. (Приложение к Т. 61 Записок Императорской Академии наук, N 3).

[1889. The Zoological museum of the Imperial Academy of sciences: Its fiftieth anniversary: Survey of its foundation, expansion, and modern state. St. Petersburg. ii, 372 pages, 2 plates. (Transactions of the Imperial Academy of sciences, Vol. 61, Supplement N 3).]

Список гадов, собранных экспедициею в северо-западную Монголию в 1876, 1877, 1879 и 1880 годах. Определения сделаны академиком А.А. Штраухом. В кн.: Потанин Г.Н. Очерки северо-западной Монголии. Вып. III. Результаты путешествия, исполненного в 1879-1880 годах по поручению Императорского Русского Географического Общества. С.-Петербург, 1883, с. 245-247.

[The list of amphibians and reptiles collected by the Expedition to North-West Mongolia in 1876, 1877, 1879 and 1880. Identifications were made by the academic A. A. Strauch. In.: Potanin G.N. Essays of North-West Mongolia. Vol. III. Results of the Expedition of 1879-1880 accomplished in 1879-1880 on the commission from the Imperial Russian Geographic Society. St. Petersburg, 1883, pp. 245-247.]



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Contents

Membership Information, Instructions for Authors..... 2
Society News..... 3
About the Cover..... 4

Shorter Communications

Wahlgren R. & David P. — Distinctive Collection of Herpetological Books on Public Auction..... 4

Articles

Korsós Z. — In memoriam Dr. Olivér György Dely (1927-2003)..... 7
Bettelheim M.P., Terry D.E. & Dunaeva J. — A Selective Translation of Alexander Strauch's "Chenological Studies," "Global Distribution," and "Comments" Specific to the Western Pond Turtle (*Clemmys marmorata*), Including a Bibliography of his Known Herpetological Work..... 10

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